

The Impact of Personality and Religion on Attitudes toward Alcohol among 16–18 year olds in Northern Ireland

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ABSTRACT: *Background:* Previous research demonstrates a negative relationship between attitude toward alcohol and religiosity. However, what is less apparent is if this relationship may, at least in part, be a function of individual differences in personality, as previous research has demonstrated a relationship between certain measures of personality and both attitude toward alcohol and attitude toward religiosity. The aim of the present study was to explore the impact of personality and the relative efficacy of different markers of religiosity in predicting attitude toward alcohol among a sample of 16–18 year olds in Northern Ireland. *Method:* The Francis Scale of Attitude toward Alcohol (Francis, 1992c. *Drug and Alcohol Dependence*, 31, 45–50) was administered alongside the Abbreviated Revised Eysenck Personality Questionnaire (Francis, Brown, & Philipchalk, 1992. *Personality and Individual Differences*, 13(4), 443–449), the Francis Scale of Attitude toward Christianity (Francis & Stubbs, 1987. *Personality and Individual Differences*, 8, 741–743) and measures of frequency of personal prayer and church attendance among a sample of 243 16- to 18-year-old sixth-form students in Northern Ireland. *Results and conclusion:* The data demonstrate that a more prohibitive attitude toward alcohol was correlated with lower psychoticism scores (tendermindedness) and a more positive attitude toward Christianity. Multiple-regression analyses confirm the importance of attitude toward religion in predicting individual differences in attitude toward alcohol.

KEY WORDS: adolescence; alcohol; Northern Ireland; personality; religion.

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Introduction

Research in the United States of America has demonstrated that alcohol use among underage youth is a serious public health problem. A national survey found that a majority of twelfth-grade students reported using alcohol in the last month, and 30% exhibited binge-drinking behaviours (Johnston, O'Mally, & Bachman, 1992). However, it is well recognised that some young people are more vulnerable to becoming involved with the use and abuse of alcohol than others. Because of the high levels of use and abuse of alcohol by young people and the consequences that result, researchers have sought to identify factors that might impact on alcohol-related attitudes and behaviours.

The close relationship between positive attitude toward alcohol and actual alcohol drinking behaviour is well documented (Barber & Grichting, 1987; Champion & Bell, 1980; Martino & Truss, 1973), suggesting that a better understanding of the underlying attitude toward alcohol may help to predict variations in overt behaviour (Ajzen, 1988; Eiser & van der Pligt, 1988). Consequently the psychological correlates of attitude toward alcohol are of theoretical interest to researchers.

Two well established schools of research have charted the impact of religiosity on alcohol related attitudes and practices and the impact of personality on both drinking practices and attitude toward alcohol. Hitherto these two schools have not been fully integrated. Moreover, the integration of these two schools is made more complex by the third school of research which links personality with individual differences in religiosity. The aim of the present paper is to review these three schools of research and then to explore empirically the relative predictive power of religiosity and personality to account for differences in attitude toward alcohol among a sample of 16–18 year olds in Northern Ireland.

Religiosity and alcohol

There is a particularly well established school of research concerned with the relationship between religiosity and both drinking practices and attitude toward alcohol among adults. Three main strands run through existing research in this school conducted within the Christian tradition, discussing religiosity in terms of denominational identity, frequency of church attendance, and the measurement of some aspects of belief, commitment or experience. No unambiguous consensus, however, emerges from these studies.

According to the first strand, a number of studies found significant differences between Protestants and Catholics, or between adherents to different Protestant churches. For example, a national study of drinking, conducted in the United States of America by Cahalan, Cisin, and Crossley (1969) reported that 7% of those belonging to conservative Protestant churches were heavy users of alcohol, compared with 13% of those belonging to liberal Protestant churches and 19% of Catholics. Bock, Cochran, and Beeghley's (1987) analysis

of data from the annual General Social Surveys 1972–1980, found the following trend in reported alcohol use: unaffiliated (90%), Episcopalians (87%), Catholics (86%), Lutherans (85%), Presbyterians (78%), Methodists (68%) and Baptists and other Protestants (56%). Using an extended database from the annual General Social Surveys 1972–1984, Cochran, Beeghley, and Bock (1988) found the following trend on reported alcohol use: no affiliation (88%), Catholic (86%), Episcopalian (86%), Lutheran (85%), Presbyterian (82%), Methodist (71%), Baptist (56%) and Protestant sects (55%). Similarly, in a survey of alcohol use conducted in the Western Isles of Scotland, Mullen, Blaxter, and Dyer (1986) reported that 43% of those belonging to the conservative Free Church of Scotland never drink alcohol, compared with 30% of those belonging to the Church of Scotland and 16% of Catholics. In a survey including an examination of the relationship between religion and alcohol consumption in Australia, Bouma, and Dixon (1987) reported that 37% of those belonging to theologically right-wing Protestant groups were total abstainers, compared with 20% of those belonging to the Presbyterian, Methodist and Uniting churches, 17% of Catholics and 14% of Anglicans. Hanson's (1974), Zucker and Harford's (1983) and Hanson and Engs' (1987) studies of college students and Schlegel and Sanborn's (1979), Jensen and Erickson's (1979), Burkett's (1980) and Hadaway, Elifson, and Petersen's (1984) studies of high school students found that Protestant adolescents were more likely to abstain from drinking than Catholic adolescents. Hawks and Bahr (1992) found significantly lower use of alcohol among Mormon adolescents than among those belonging to other religious groups. Cosper, Okraku, and Neumann (1987) reported that, in Canada, Protestants were less likely to frequent taverns than members of other religious groups. Beeghley, Bock, and Cochran (1990) found that individuals who switch their denominational allegiance from a proscriptive to a non-proscriptive group also increase their use of alcohol. Research contrasting religious groups from within and without the Christian tradition carried out by Loewenthal, MacLeod, Cook, Lee, and Goldblatt (2003) has shown that Protestants displayed more accepting attitudes to alcohol than Jews.

Other studies, however, question this tidy pattern. Closer scrutiny of the Catholic community reveals crucial cultural differences, with Irish Catholics displaying high rates of alcoholism and Italian Catholics displaying low rates (Wechsler, Demone, Thum, & Kasey, 1970). Closer scrutiny of some Protestant groups reveals other deviations from the expected pattern. Chafetz and Demone (1962), for example, reported that more Methodist students drink to get intoxicated than any other group. Skolnick (1958) also found high rates of intoxication and social complications reported by Methodist students from an abstinence background. Burkett and White (1974) found no relationship between denominational preference and adolescent drinking. Jessor and Jessor (1977) reported that the degree of fundamentalism in the parents' religious group was not significantly related to their children's drinking. Shore, Rivers, and Berman (1983)

found no relationship between students' denominational background and desire to refrain from drinking. Wechsler and McFadden (1979) found no significant differences in the proportions of abstainers among Protestant and Catholic students. While Engs, Hanson, Gliksman, and Smythe (1990) found significant differences between the drinking practices of Catholic and mainstream Protestant students in the United States of America, among Canadian students fewer differences were found between the two groups. While Mullen, Williams and Hunt (1996) found no differences between born Catholics and the rest of the population in terms of alcohol use, current Protestants were significantly less likely than either Catholics or those of no religious affiliation to be either moderate or heavy drinkers. Patock-Peckham, Hutchinson, Cheong, and Nagoshi (1998) found that while no significant differences emerged across religious groups in terms of problems associated with alcohol use, Protestants reported significantly higher levels of perceived drinking control than Catholics. Intrinsic religiosity played a more important role in shaping drinking behaviour among Protestants than among Catholics. Moreover, some studies suggest that the significance of denominational identity may be growing weaker over time. For example, Nusbaumer (1981) reported that the impact of religious affiliation on the practice of abstinence was weaker in 1978 than in 1963. Similarly, Hilton and Clark (1987) found that denominational differences in reporting dependence problems were less significant in 1984 than in 1967.

According to the second strand, a number of studies found a significant negative relationship between the frequency of church attendance and the level of alcohol consumption, drunkenness and related alcohol problems. For example, Cahalan, Cisin, and Crossley's (1969) study of drinking patterns in the United States of America found that among frequent churchgoers only one in ten was a heavy drinker, compared with more than one in five among those who never went to church. A similar relationship between church attendance and drinking patterns was reported among adult samples by Cahalan and Room (1972), Borgatta, Montgomery, and Borgatta (1982), Gottlieb and Green (1984), Cospers, Okraku, and Neumann (1987), Lubben, Chi, and Kitano (1988), Clarke, Beeghley, and Cochran (1990) and Cochran, Beeghley, and Bock (1992), among undergraduates and college students by Straus and Bacon (1953), Middleton and Putney (1962), Biggs, Orcutt, and Bakkenist (1974), Hanson (1974) and Parfrey (1976) and among high school students by Globetti (1969), Burkett and White (1974), Jessor and Jessor (1975), Higgins and Albrecht (1977), Schlegel and Sanborn (1979), Jensen and Erickson (1979), Burkett (1977, 1980), Elifson, Petersen, and Hadaway (1983), Hadaway, Elifson, and Petersen (1984), Lorch and Hughes (1985), Adlaf and Smart (1985), Amoateng and Bahr (1986), Faulkner, Alcorn and Garvin (1989) Long and Boik (1993), Brown, Parks, Zimmerman, and Phillips (2001), Sutherland and Shepherd (2001), and Mason and Windle (2002). Donovan, Jessor and Jessor (1983) demonstrated in a longitudinal study that frequency of church attendance during high school or college could predict problem drinking

during young adulthood. On the other hand, Margulies, Kessler and Kandel (1977) did not find that church attendance predicted the onset of drinking spirits among high school pupils in the United States of America. Francis (1994) found no significant relationship between frequency of church attendance and reported drinking behaviour among his adult sample in England.

According to the third strand, a number of studies which proposed various measures of religious belief, commitment, participation or experience found that these measures correlated significantly with indices of drinking behaviour. For example, Globetti and Windham (1967) reported an inverse relationship between alcohol use and their seven item index of the importance of religion among senior high school students. Preston (1969) reported an inverse relationship between drinking and his index of religious participation. Carman (1971) reported an inverse relationship between his scale of religious involvement and a scale of social problems resulting from drinking among United States of America servicemen. Globetti (1972) found that the high school students who scored high on his three item index of religious participation were less likely to use alcohol. Vener, Zaenglein and Stewart (1977) reported a significant negative correlation between their scale of orthodox religious beliefs and alcohol use among high school students. O'Connor (1978) found that 18–21 year olds reporting a high level of importance of religion in their lives tended to categorise among the lighter drinking groups, as did Heim et al. (2004) among 16–25 year olds. Turner and Willis (1979) found a significant negative relationship between self-assessed levels of religiosity and current alcohol use among college students. Hardert and Dowd (1994) found that self-definition as religious did not affect alcohol use among a sample of high school and college students in the United States of America, after the effect of other factors had been accounted for. Potvin and Lee (1980) reported a negative correlation between their personal-experiential religiousness scale and alcohol use among 13–18 year olds, a finding confirmed by Hays, Stacy, Widaman, DiMattio, and Downey's (1986) reanalysis of these data. Khavari, and Harmon (1982) found significantly elevated use of alcohol among subjects who assess themselves as 'not religious at all.' Sadava (1985) found an inverse relationship between his scale of religious activities and experiences and an index of the adverse consequences of drinking among a sample of adult factory workers, nurses and teachers. Hundleby (1987) found an inverse relationship between his index of religious behaviour and alcohol usage among ninth grade students in Ontario. Harford and Grant (1987) reported a negative correlation between their scale of importance placed on religion and drinking behaviour among high school students. Jolly and Orford (1983) found that student Christian Union membership was a significant predictor of abstinence.

Perkins (1985, 1987, 1991) reported that strength of religious commitment had a negative effect on alcohol consumption and problem drinking among college students. Cochran (1988) reported an inverse relationship between participating salience in religious activities and alcohol use. Cochran and

Akers (1989) found a negative relationship between alcohol consumption and self-assessed religiousness among high school students. Welch, Tittle, and Petee (1991) reported a small negative correlation between their scale of personal religious practices and respondents' tendency to 'drink excessively' among adult Catholic parishioners. Cochran (1989, 1991) found a significant negative relationship between his single item index of participatory salience of church group activities and alcohol use among pupils in grades seven through twelve. In a subsequent analysis of these data, Cochran (1993) suggested that there is a stronger inverse relationship between religiosity and the use of beer and liquor than between religiosity and the use of wine. Bechtel and Swisher (1992) reported an inverse relationship between time spent on religious activities and the self-reported use of beer, wine and liquor among sixth to twelfth grade students. Brizer (1993) reported an inverse relationship between alcohol use and involvement in running a local church among psychiatric inpatients. Burkett (1993) reported an inverse relationship between a quantity-frequency index of drinking beer, wine and liquor and a four item index of religious commitment among both male and female senior high school students. Koenig, George, Meador, Blazer, and Ford (1994) reported that DSMIII alcohol disorders were significantly less common among weekly churchgoers and those who are born again. Sutherland and Shepherd (2001) found alcohol use to be significantly less practised among young people who believe in God than among those who do not. Hammermeister, Flint, Havens, and Peterson (2001) reported that the number of alcoholic drinks consumed every day was significantly lower among those with high religious well-being when compared with those with low religious well-being. Brown, Parks, Zimmerman, and Phillips (2001) found an inverse relationship between fundamentalist beliefs and problematic drinking. Mason and Windle (2001) found in their longitudinal study that religiosity, a measure combining church attendance and self-rated importance of religion, was associated with declining alcohol use over time. Peltzer, Malaka, and Phaswana (2002) found an inverse relationship between alcohol use and their three item measures of religiosity. Daugherty and Mclarty (2003) found an inverse relationship between religious coping and self-reported alcohol use. Nonnemaker, McNeely, and Blum (2003) found that public religiosity, a variable combining a measure of frequency of church attendance and participation in religious youth group activities, and private religiosity, a variable combining frequency of prayer and importance of religion, both impacted on alcohol use. Public religiosity was shown to be negatively associated with any use of alcohol, and problem use of alcohol, while private religiosity was shown to be negatively associated with occasional alcohol use.

On the other hand, Mookherjee (1986) found no relationship between scores on their eleven item scale of religious fundamentalism and their assessment of individuals judged to be alcoholic, probable alcoholic or non-alcoholic. Wiggins and Wiggins (1987) found no relationship between

student religious belief and drinking behaviour. Borynski (2003) also found no association between religiosity and alcohol among a sample of college students in a study which examined binge drinking behaviour, and religious orientation. While Wechsler and Thum (1973) found a negative relationship between self-assessed religiosity and level of alcohol use among junior and senior high school students in one sample, they failed to reproduce this finding among a second sample.

The inconsistencies within these three strands may, in part, be attributed to the obvious discrepancies within the various measures of religiosity and the different measures of alcohol related behaviours employed.

Religiosity and personality

A series of recent studies has carefully mapped the personality correlates of religiosity among 11- to 17-year-old school pupils within the UK in terms of Eysenck's empirically derived three dimensional model of personality, which argues that individual differences can be most adequately and economically summarised in terms of the three orthogonal higher order factors of neuroticism-stability, extraversion-introversion, and psychoticism-tendermindedness (Eysenck & Eysenck, 1985). A consistent pattern of relationships has emerged from these studies, confirming four main trends.

First, Eysenck's neuroticism scale measures emotional lability. High scorers on this dimension are characterised as anxious, worrying individuals who are moody and frequently depressed. After controlling for the expected sex differences, according to which females score more highly than males on both indices of religiosity (Argyle & Beit-Hallahmi, 1975; Beit-Hallahmi & Argyle, 1997) and neuroticism (Jorm, 1987), several sets of findings demonstrate no significant relationship between neuroticism scores and religiosity (Francis, Pearson, Carter, & Kay, 1981a; Francis, Pearson, & Kay, 1983a; Francis & Pearson, 1991). This finding contradicts competing theories in the psychology of religion which propose that religion either fosters or reflects neuroticism (Freud, 1950; Vine, 1978) or promotes emotional stability (Allport, 1950; Jung, 1938).

Second, Eysenck defines high scorers on the psychoticism scale as cold, impersonal, hostile, unemotional, unhelpful, paranoid and tough-minded. In spite of recognised theoretical and empirical difficulties associated with the earlier editions of both the adult (Eysenck, Eysenck, & Barrett, 1985) and the junior psychoticism scales (Corulla, 1990), repeated analyses demonstrate a significant negative relationship between psychoticism scores and religiosity (Francis, 1992a; Francis & Pearson, 1985a; Kay, 1981). This finding is consistent with Eysenck's central theory relating personality and social attitudes. According to this theory, religion belongs to the domain of tenderminded social attitudes (Eysenck, 1975, 1976), tenderminded social attitudes are a function of conditioning (Eysenck, 1954, 1961) and individuals who score low on psychoticism have been shown by many empirical studies to condition more readily (Beyts, Frcka, Martin, & Levey, 1983). However, Dunne, Martin

Pangan and Heath (1997) have suggested that rather than psychoticism, it is actually neuroticism which is most important for the long-term stability of frequent religious practice.

Third, Eysenck defines the higher scorer on the extraversion scale as sociable, outgoing, impulsive, carefree and optimistic. This definition clearly combines the two notions of sociability and impulsivity (Eysenck & Eysenck, 1963). While the two components appear to have been more evenly balanced in the earlier editions of the extraversion scale, the more recent editions have been largely purified of impulsivity which now relates more closely to psychoticism (Rocklin & Revelle, 1981). While according to the earlier operationalisations of extraversion, introverts emerge as more religious, according to the later operationalisations repeated analyses demonstrate no significant relationship between extraversion scores and religiosity (Francis & Pearson, 1985b; Francis, Pearson, & Kay, 1983b; Francis, Pearson, Carter, & Kay, 1981b). This finding is consistent with the evidence of empirical studies which identify impulsivity as the component within extraversion and psychoticism which is fundamental to conditionability (Pearson, Francis, & Lightbown, 1986). Thus the removal of the impulsivity component from extraversion vitiates this theoretical basis for associating the personality dimension of extraversion with religiosity.

Fourth, Eysenck introduced the lie scale into his personality measures in order to detect the faking of questionnaire responses. The high scorer on the lie scale consistently affirms behaviours which are socially desirable but very unlikely and rejects behaviours which are very likely but socially undesirable. Repeated analyses demonstrate a positive significant relationship between lie scale scores and religiosity (Francis, Pearson, & Kay, 1983c, 1988; Pearson & Francis, 1989). The theoretical interpretation of this consistent finding is, however, confused by the growing debate concerning the psychological significance of the lie scale (Furnham, 1986). Four main theories emerge from this debate. The straightforward view that lie scales measure untruthfulness (O'Donovan, 1969) suggests that religious subjects are bigger liars. The paradoxical view that lie scales actually measure truthfulness (Loo, 1980) proposes the theory that religious subjects are more truthful. The third view suggests that high lie scores indicate lack of self-insight (Crookes & Buckley, 1976) and leads to the theory that religious subjects are less insightful and less mature. The fourth view suggests that high lie scores indicate social conformity (Massey, 1980) and leads to the view that religious subjects are generally more socially conformist.

The consensus of these focused analyses is given further support by studies conducted among other samples of school pupils in the United Kingdom, using the Francis Scale of Attitude toward Christianity in either the junior form (Francis, 1978, 1989) or the adult form (Francis, 1992b; Francis & Stubbs, 1987), including 8–11 year olds (Robbins, Francis, & Gibbs, 1995), 11 year olds (Francis, Lankshear, & Pearson, 1989), 12–16 year olds (Francis & Montgomery,

1992), 15–16 year olds (Francis & Pearson, 1988) and 16–18 year olds (Fearn, Lewis, & Francis, 2003; Francis & Fearn, 1999; Wilcox & Francis, 1997). The findings have also been replicated among secondary school pupils in Germany (Francis & Kwiran, 1999) and Hong Kong (Francis, Lewis, & Ng, 2003).

Another set of studies has employed the Francis Scale of Attitude toward Christianity alongside the Eysenck measures of personality among students and adults, including studies in the United Kingdom (Bourke & Francis, 2000; Carter, Kay, & Francis, 1996; Francis, 1991, 1992a, 1993, 1999; Francis & Bennett, 1992; Shuter-Dyson, 2000), Australia and Canada (Francis, Lewis, Brown, Philipchalk, & Lester, 1995), Northern Ireland (Lewis, 1999, 2000, 2001; Lewis and Joseph, 1994), Republic of Ireland (Maltby, 1997; Maltby & Lewis, 1997), the United States of America (Lewis & Maltby, 1995; Roman & Lester, 1999), France (Lewis & Francis, 2000), and Greece (Youtika, Joseph, & Diduca, 1999). Once again the basic pattern was confirmed that attitude toward Christianity was negatively correlated with psychoticism, but unrelated to either extraversion or neuroticism.

The wider international literature exploring the location of religion within Eysenck's dimensional model of personality among samples of adults has, however, failed to reach such a clear consensus. While Wilson and Brazendale (1973), Chlewinski (1981), Caird (1987) and Robinson (1990) confirm the lack of relationship between neuroticism and religiosity, Johnson et al. (1989) report a negative relationship in one of their samples and Watson, Morris, Foster, and Hood (1986), Heaven (1990) and Biegel and Lester (1990) find evidence for positive relationships. While Wilson and Brazendale (1973) and Chlewinski (1981) confirm the hypothesised negative relationship between religiosity and Eysenck's early measures of extraversion, Siegman (1963), Pearson and Sheffield (1976) and Biegel and Lester (1990) fail to confirm this finding. Similarly, several studies using the more recent editions of Eysenck's personality measures fail to find a consistent negative correlation between religion and psychoticism (Caird, 1987; Heaven, 1990; Robinson, 1990; Watson, et al., 1986). While Wilson and Brazendale (1973), Nias (1973) and Francis and Katz (1992) confirm the positive relationship between religiosity and lie scale scores, other studies fail to replicate this consistent pattern (Caird, 1987; Heaven, 1990; Pearson & Sheffield, 1976; Robinson, 1990; Watson, et al., 1986). The discrepancies which emerge from the wider international literature may, in part, be attributed to the wide range of indices of religiosity employed in these studies.

Personality and alcohol

The wider literature on the relationship between Eysenck's dimensional model of personality and the use of alcohol confirms that psychoticism is a key personality factor in this area. Higher psychoticism scores have been found among groups of men and women described with severe alcohol dependence (Rankin, Stockwell, & Hodgson, 1982). Other studies have reported significant

correlations between psychoticism scores and beer and cider consumption (Allsopp, 1986), alcohol consumption (Grau & Ortet, 1999), getting drunk and using hard drugs (Cookson, 1994). On the other hand, while Ogden, Dundas, and Bhat (1989) found higher psychoticism scores among male alcohol misusers in community treatment, the women in their sample did not differ significantly from the population norms.

The majority of studies also confirm a clear relationship between neuroticism and the use of alcohol. Higher neuroticism scores have been found among individuals attending Alcoholics Anonymous (Edwards, Hensman, Hawker, & Williamson, 1966), young alcoholics (Rosenberg, 1969), male and female chronic alcoholics (Keehan, 1970), alcoholics (Shaw, MacSweeney, Johnson, & Merry, 1975), men and women with severe alcohol dependency (Rankin, Stockwell, & Hodgson, 1982), alcohol misusers in community treatment (Ogden, Dundas, & Bhat, 1989). On the other hand, research has found no significant correlation between neuroticism scores and beer and cider consumption (Allsopp, 1986), habitual alcohol consumption (Jackson & Matthews, 1988), getting drunk (Cookson, 1994), or alcohol consumption (Grau & Ortet, 1999).

The relationship between extraversion and the use of alcohol is much less clear. Lower extraversion scores have been found among men with severe alcohol dependency (Rankin, Stockwell, & Hodgson, 1982), and alcohol misusers in community treatment (Ogden, Dundas, & Bhat, 1989). On the other hand, no significant relationship with extraversion scores has been reported among individuals attending Alcoholics Anonymous (Edwards, Hensman, Hawker, & Williamson, 1966), young alcoholics (Rosenberg, 1969), alcoholics (Shaw, MacSweeney, Johnson, & Merry, 1975), women with severe alcohol dependency (Rankin, Stockwell, & Hodgson, 1982). Similarly, Cookson (1994) found no relationship between extraversion scores and getting drunk or using hard drugs. At the same time, Allsopp (1986) found higher consumptions of beer and cider among extraverted young men. Jackson and Mathews (1988) found a positive correlation between extraversion and habitual alcohol consumption, and Grau and Ortet report a positive correlation between extraversion and alcohol consumption (1999).

Finally, lower lie scale scores have been found among alcoholics (Shaw, MacSweeney, Johnson, & Merry, 1975). At the same time, no significant differences were found in lie scale scores among men and women with severe alcohol dependency (Rankin, Stockwell and Hodgson, 1982). While Ogden, Dundas, and Bhat (1989) found lower lie scale scores among male alcohol misusers in community treatment, the women in their sample did not differ significantly from the population norms. Jackson and Matthews (1988) found no correlation between lie scale scores and habitual alcohol consumption. Similarly Grau and Ortet (1999) report no correlation between lie scale scores and alcohol consumption.

More recently, Francis (1997) has examined the relationship between personality, various markers of religiosity and substance use, including an item

on drunkenness, among a sample of 13–15 year olds in the United Kingdom. Bivariate analysis demonstrated that a more permissive attitude toward substance use was associated with higher psychoticism scores, higher extraversion scores, higher neuroticism scores, lower lie scale scores, and higher frequencies of prayer and church attendance, and higher levels of belief in the existence of God. However, multiple-regression analysis employed by Francis (1997) demonstrated that when all of the variables were considered together, scores on the Eysenckian psychoticism scale were the strongest single predictor of attitude toward substance abuse, although the other dimensions of personality provided further predictive power. Having taken into account all other predictor variables, belief in God remained the only religious variable to provide additional predictive power.

Research question

The interrelationship of these three schools of research suggests that the apparent direct relationship between religiosity and attitude toward alcohol may, at least in part, be a function of individual differences in personality. While religiosity is clearly related to low psychoticism scores and high lie scale scores, a permissive attitude toward substance use is clearly related to high psychoticism scores and low lie scale scores. The aim of the present study is to explore these interrelations between personality, religiosity and attitude toward alcohol use among a sample of 16- to 18-year-old adolescents, using correlation and multiple regression analyses.

In the operationalisation of this research question the present project builds on Francis (1997) and extends that project in two important ways. First, although Francis (1997) included several indices of religiosity the study failed to include an attitudinal measure. Since a number of recent studies have drawn attention to the centrality of the attitudinal dimension of religiosity as a predictor of a range of social and personal values and behaviours (Kay & Francis, 1996), the present study incorporates such a measure. Second, although Francis (1997) included an item concerned with attitude toward alcohol, it did so only as a component part of assessing a wider construct defined as attitude toward substance use. Since a number of recent studies have drawn attention to the ways in which religiosity may be related in different ways to attitudes toward different substances (Francis and Mullen, 1993), the present study incorporates a scale specifically concerned with attitude toward alcohol.

Method

Sample

The questionnaire was administered to a sample of 243 16- to 18-year-old sixth-form students in Northern Ireland. Fifty-four percent (131) of the respondents were female and 46% (112) were male.

Measures

All respondents completed the following measures:

The Francis Scale of Attitude toward Alcohol (Francis, 1992c). This instrument contains sixteen Likert-type items, using the five response categories: agree strongly, agree, not certain, disagree and disagree strongly. Scores can range between 16 and 90, with a higher score indicating a more proscriptive attitude toward alcohol. The instrument has previously been shown to function with satisfactory reliability among a sample of 315 individuals concerned with youth work in England (Francis, 1992c) and among 200 student members of the Christian Union in Northern Ireland and Scotland (Francis, Gilpin, & Robbins, 1999). In each of these studies coefficients alpha in excess of .8 were achieved.

The Abbreviated Revised Eysenck Personality Questionnaire (Francis, Brown, & Philipchalk, 1992). This instrument proposes six-item measures of extraversion, neuroticism, psychoticism and the lie scale. Each item is assessed on the two point scale: yes and no. For each sub-scale, scores can range between 0 and 6, with higher scores indicating a greater degree of the particular personality trait. The instrument has previously been shown to function with satisfactory psychometric properties among student samples in Australia, Canada, United Kingdom and United States (Francis, Brown, & Philipchalk, 1992) and Northern Ireland (Forrest, Lewis, & Shevlin, 2000).

The Francis Scale of Attitude toward Christianity (Francis & Stubbs, 1987). This instrument contains 24 Likert-type items concerned with God, Jesus, bible, church and prayer. There are five possible response categories: agree strongly, agree, not certain, disagree and disagree strongly. Scores can range between 24 and 120. Higher scores indicate a more positive attitude toward Christianity. This scale has been employed in over 100 independent studies and has been shown consistently to function with a level of internal reliability in excess of .8 (Kay & Francis, 1996).

Personal prayer was measured on the five point scale: daily, at least once a week, sometimes, once or twice a year and never. Higher scores indicate a greater frequency of practice.

Church attendance was measured on the five point scale: at least once a week, at least once a month, sometimes, once or twice a year, and never. Higher scores indicate a greater frequency of practice.

Denominational affiliation was assessed via a pre-coded question appropriate to the religious profile of Northern Ireland. The options were: none, Catholic, Protestant, and other. For the purpose of the current study only the data provided by those individuals who identified as either 'Catholic' or as 'Protestant' were analysed. This variable was dichotomised (0 = Protestant; 1 = Catholic) and entered as a dummy variable.

Data analysis

The data were analysed by means of the SPSS statistical package, using the Pearson correlation, reliability and multiple-regression routines (SPSS Inc., 1988).

Results

The first step in data analysis explored the internal reliability of the scales employed in the study. Satisfactory levels of reliability were found for each of the measures used in the study: Francis Scale of Attitude Toward Alcohol achieved a coefficient alpha (Cronbach, 1951) of, .89; Francis Scale of Attitude toward Christianity, .96; extraversion, .80; neuroticism, .71; psychoticism, .39; lie scale, .59. The relatively low level of reliability of the psychoticism scale is consistent with known problems with the parent instrument and with known difficulties in operationalising this construct (Francis, Brown, & Philipchalk, 1992).

The three religious variables all demonstrated a wide range of responses. In response to the question about personal prayer, 26.5% reported praying daily, 18.2% at least once a week, 31.8% sometimes, 8.0% once or twice a year, and 15.4% never. In response to the question about church attendance, 38.3% reported attending church every week, 15.7% at least once a month, 22.8% sometimes, 16.7% once or twice a year, and 6.5% never.

The second step in data analysis explored the bivariate relationships between the variables. Table 1 presents the correlations between the measures of personality, religiosity, and attitude toward alcohol. Regarding the relationship between attitude toward alcohol and religiosity, the correlation coefficients indicate that a more proscriptive attitude toward alcohol is associated with a more positive attitude toward Christianity, and increased frequencies of personal prayer and church attendance. Regarding the rela-

TABLE 1

Correlation Matrix Showing the Relationships between Personality, Religiosity and Attitude toward Alcohol

	<i>Psy</i>	<i>Ext</i>	<i>Neu</i>	<i>Lie</i>	<i>Alcohol</i>	<i>Denomination</i>
Prayer	-0.2035 0.001	-0.1292 0.05	0.0550 NS	0.0839 NS	0.2818 0.001	0.1797 0.001
Church	-0.2857 0.001	-0.2323 0.001	0.0830 NS	0.1975 0.001	0.2809 0.001	0.1620 0.001
Attitude toward Christianity	-0.4158 0.001	-0.1441 0.01	0.0447 NS	0.1441 0.01	0.3321 0.001	0.0322 NS
Denomination	-0.0514 NS	0.0946 NS	0.0236 NS	0.1809 0.001	-0.0133 NS	—
Attitude toward alcohol	-0.2769 0.001	-0.1961 0.001	0.2411 0.001	0.0160 NS	—	—

tionship between attitude toward alcohol and personality, the correlation coefficients indicate that a more proscriptive attitude toward alcohol is significantly associated with tendermindedness rather than toughmindedness (psychoticism), introversion rather than extraversion, and with neuroticism rather than stability. Attitude toward alcohol is shown to be unrelated to lie scale scores. Regarding the relationship between personality and religiosity, the correlation coefficients indicate the following pattern. Neuroticism is unrelated to any of the religious variables. Psychoticism is negatively associated with frequency of prayer, church attendance, and attitude toward Christianity. Extraversion is negatively associated with frequency of prayer, church attendance and attitude toward Christianity. Lie scale scores are positively associated with frequency of church attendance, and attitude toward Christianity, but not with prayer.

The third step in the data analysis explored whether the relationship between religiosity and attitude toward alcohol is, at least in part, a function of individual differences in personality by means of a multiple regression model. Table 2 therefore, presents the multiple regression significance tests designed to test a multivariate model of the simultaneous influence of age, sex, religiosity and personality on attitude toward alcohol. The first stage in the model regressed sex and age, in this fixed order, on the attitude toward alcohol measure. The data demonstrate that neither sex nor age functioned as significant predictors of attitude toward alcohol scores. The second stage in the model regressed the three dimensions of personality in the fixed order of

TABLE 2

Multiple Regression Significance Test: The Relative Impact of the Predictor Variables on Attitude toward Alcohol

<i>Predictor variable</i>	r^2	<i>Increase</i>			β	t	$p <$
		r^2	F	$p <$			
Sex	0.0025	0.0025	0.82	NS	0.0196	0.4	NS
Age	0.0058	0.0033	1.06	NS	-0.0231	-0.4	NS
Psy	0.0793	0.0735	25.46	0.001	-0.1005	-1.6	NS
Ext	0.0981	0.0188	6.64	0.01	-0.0551	-1.0	NS
Neu	0.1122	0.0141	5.02	0.05	0.1663	2.9	0.01
Lie	0.1140	0.0018	0.63	NS	-0.0646	-1.2	NS
Attitude	0.1770	0.0631	24.14	0.001	0.1586	2.1	0.05
Attendance	0.1877	0.0107	4.15	0.05	0.1111	1.7	NS
Prayer	0.1929	0.0052	2.00	NS	0.1043	1.5	NS
Denomination	0.1941	0.0012	0.45	NS	-0.0381	-0.7	NS

psychoticism, extraversion, and neuroticism, and the lie scale on the attitude toward alcohol measure. The beta weights demonstrate that extraversion, psychoticism, and lie scale scores were not significant predictors of attitude toward alcohol scores. Neuroticism scores, however, significantly impacted on attitude toward alcohol scores. The third stage in the model regressed attitude toward Christianity, frequency of church attendance, frequency of prayer, and denominational affiliation in this fixed order, on the attitude toward alcohol measure. According to the beta weights a more positive attitude toward Christianity is associated with a more prohibitive attitude toward alcohol. Having taken into account the impact of attitude toward Christianity, neither personal prayer, church attendance, nor denominational affiliation made a significant difference to attitude toward alcohol scores.

Discussion

The present study has integrated two schools of research which had hitherto been conducted in relative isolation. These schools concern the relationship between personality and attitude toward alcohol and the relationship between religiosity and attitude toward alcohol. By employing multiple indices of religiosity the present project has also enabled comparison to be made between the power of different aspects of religiosity to predict individual differences in attitude toward alcohol. Three main conclusions emerge from the present study.

First, correlational analyses have demonstrated that religiosity and personality are implicated in the formation of adolescent attitudes toward alcohol. In terms of religiosity, the attitudinal dimension is a more robust predictor of attitude toward alcohol than the behavioural measures employed. In terms of personality, although extraversion, and neuroticism are significantly related to attitude toward alcohol, it is psychoticism which, in the bivariate analysis, emerges as the most significant predictor of attitude toward alcohol. These two key predictors of attitude toward alcohol are of theoretical interest owing to their fundamental relationship to each other (Francis, 1992a), and to the realm of tenderminded social attitudes.

Second, multiple regression analysis confirm the importance of personal religiosity in predicting individual differences in attitude toward alcohol, even after controlling for personality variables. In other words the influence of personal religiosity on attitude toward alcohol reported in previous studies cannot be explained as an artefact of personality differences, even though personality is known to account for some of the variance in individual differences both in personal religiosity and in attitude toward substance use.

The multiple regression analysis demonstrates that neither religious practice (church attendance and prayer) nor religious affiliation convey much

additional information after taking attitude toward Christianity into account. These data, therefore, suggest that it is religious attitude rather than practice which is most important in shaping the relationship between religiosity and attitude toward substance use.

On this basis the recommendation can be made that future research concerned with the relationship between religion and alcohol should include measures of religious attitude either in place of or in addition to measures of religious behaviour and affiliation.

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References

- Adlaf, E.M., and Smart, R.G. (1985). Drug use and religious affiliation, feelings and behaviour. *British Journal of Addiction*, 80, 163–171.
- Ajzen, I. (1988). *Attitudes, personality and behaviour*. Milton Keynes: Open University Press.
- Allport, G.W. (1950). *The individual and his religion*. New York: Macmillan.
- Allsopp, J.F. (1986). Personality as a determinant of beer and cider consumption among young men. *Personality and Individual Differences*, 7, 341–347.
- Amoateng, A.Y., and Bahr, S.J. (1986). Religion, family and adolescent drug use. *Sociological Perspectives*, 29, 53–76.
- Argyle, M., and Beit-Hallahmi, B. (1975). *The social psychology of religion*. London: Routledge and Kegan Paul.
- Barber, J.G., and Grichting, W.L. (1987). The assessment of drug attitudes among university students using the short form of the drug attitude scale. *International Journal of the Addictions*, 22, 1033–1039.
- Bechtel, L.J., and Swisher, J.D. (1992). An analysis of the relationship among selected attitudinal, demographic, and behavioural variables and the self-reported alcohol use behaviours of Pennsylvania adolescents. *Journal of Alcohol and Drug Education*, 37(2):83–93.
- Beeghley, L., Bock, E.W., and Cochran, J.K. (1990). Religious change and alcohol use: an application of references group and socialization theory. *Sociological Forum*, 5, 261–278.
- Beit-Hallahmi, B., and Argyle, M. (1997). *The psychology of religious behaviour, belief & experience*. London: Routledge.
- Beyts, J., Frcka, G., Martin, I., and Levey, A.B. (1983). The influence of psychoticism and extraversion on classical eyelid conditioning using a paraorbital shock UCS. *Personality and Individual Differences*, 4, 275–283.
- Biegel, K., and Lester, D. (1990). *Religiosity and psychological disturbance*, *Psychological Reports*, 67, 874.
- Biggs, D.A., Orcutt, J.B., and Bakkenist, N. (1974). Correlates of marijuana and alcohol use among college students. *Journal of College Student Personnel*, 15, 22–30.
- Bock, E.W., Cochran, J.K., and Beeghley, L. (1987). Moral messages: the relative influence of denomination on the religiosity-alcohol relationship. *The Sociological Quarterly*, 28, 89–103.
- Bourke, R., and Francis, L.J. (2000). Personality and religion among music students. *Pastoral Psychology*, 48, 437–444.
- Borgatta, E.F., Montgomery, R. J. V., and Borgatta, M.L. (1982). Alcohol use and abuse, life crises events and the elderly. *Research on Aging*, 4, 378–408.

- Borynski, M.L. (2003). Factors related to reductions in alcohol consumption among college students: The role of religious involvement. *Current Psychology*, 22, 138–148.
- Bouma, G.D., and Dixon, B.R. (1987). *The religious factor in Australian life*. Melbourne: MARC Australia.
- Brizer, D.A. (1993). Religiosity and drug use among psychiatric inpatients. *American Journal of Drug and Alcohol Abuse*, 19, 337–345.
- Brown, T.L., Parks, G.S., Zimmerman, R.S., and Phillips, C.M. (2001). The role of religion in predicting adolescent alcohol use and problem drinking. *Journal of Studies on Alcohol*, 62, 696–705.
- Burkett, S.R. (1977). Religion, parental influence, and adolescent alcohol and marijuana use. *Journal of Drug Issues*, 7, 263–273.
- Burkett, S.R. (1980). Religiosity, beliefs, normative standards and adolescent drinking. *Journal of Studies on Alcohol*, 41, 662–671.
- Burkett, S. R (1993). Perceived parents' religiosity, friends' drinking, and hellfire: A panel study of adolescent drinking. *Review of Religious Research*, 35, 134–153.
- Burkett, S.R., and White, M. (1974). Hellfire and delinquency: Another look. *Journal for the Scientific Study of Religion*, 13, 455–462.
- Cahalan, D., Cisin, I.H., and Crossley, H.M. (1969). *American drinking practice: A national study of drinking behaviour and attitudes*. New Brunswick, New Jersey: Rutgers Centre for Alcohol Studies.
- Cahalan, D., and Room, R. (1972). Problem drinking among American men aged 21–59. *American Journal of Public Health*, 62, 1473–1483.
- Caird, D. (1987). Religiosity and personality: Are mystics introverted, neurotic, or psychotic? *British Journal of Social Psychology*, 26, 345–346.
- Carman, R.S. (1971). Expectations and socialization experiences related to drinking among US service men. *Quarterly Journal of Studies on Alcohol*, 32, 1040–1047.
- Carter, M., Kay, W.K., and Francis, L.J. (1996). Personality and attitude toward Christianity among committed adult Christians. *Personality and Individual Differences*, 20, 265–266.
- Chafetz, E., and Demone, H.E. (1962). *Alcoholism and society*. New York: Oxford University Press.
- Champion, R.A., and Bell, D.S. (1980). Attitudes toward drug use: Trends and correlates with actual use. *International Journal of the Addictions*, 15, 551–567.
- Chlewinski, Z. (1981). Personality and attitude towards religion in Poland. *Personality and Individual Differences*, 2, 243–245.
- Clarke, L., Beeghley, L., and Cochran, J.K. (1990). Religiosity social class and alcohol use: An application of reference group theory. *Sociological Perspectives*, 33, 201–218.
- Cochran, J.K. (1988). The effect of religiosity on secular and ascetic deviance. *Sociological Focus*, 21, 293–306.
- Cochran, J.K. (1989). Another look at delinquency and religiosity. *Sociological Spectrum*, 9, 147–162.
- Cochran, J.K. (1991). The effects of religiosity on adolescent self-reported frequency of drug and alcohol use. *Journal of Drug Issues*, 22, 91–104.
- Cochran, J.K. (1993). The variable effects of religiosity and denomination on adolescent self-reported alcohol use by beverage type. *Journal of Drug Issues*, 23, 479–491.
- Cochran, J.K., and Akers, R. (1989). Beyond hellfire: An exploration of the variable effects of religiosity on adolescent marijuana and alcohol use. *Journal of Research in Crime and Delinquency*, 26, 198–225.
- Cochran, J.K., Beeghley, L., and Bock, E.W. (1988). Religiosity and alcohol behaviour: an exploration of reference group theory. *Sociological Forum*, 3, 256–276.
- Cochran, J.K., Beeghley, L., and Bock, E.W. (1992). The influence of religious stability and homogamy on the relationship between religiosity and alcohol use among Protestants. *Journal for the Scientific Study of Religion*, 31, 441–456.
- Cookson, H. (1994). Personality variables associated with alcohol use in young offenders. *Personality and Individual Differences*, 16, 179–182.
- Corulla, W.J. (1990). A revised version of the psychoticism scale for children. *Personality and Individual Differences*, 11, 65–76.
- Cosper, R.L., Okraku, I.O., and Neumann, B. (1987). Tavern going in Canada: a national survey of regulars at public drinking establishments. *Journal of Studies on Alcohol*, 48, 252–259.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334.

- Crookes, T.G., and Buckley, S.J. (1976). Lie score and insight. *Irish Journal of Psychology*, 3, 134–136.
- Daugherty, T.K., and McLarty, L.M. (2003). Religious coping, drinking motivation, and sex. *Psychological Reports*, 92, 643–647.
- Donovan, J.E., Jessor, R., and Jessor, L. (1983). Problem drinking in adolescence and young adulthood. *Journal of Studies on Alcohol*, 44, 109–137.
- Dunne, M.P., Martin, N.G., Pangan, T., and Heath, A. C. (1997). Personality and change in the frequency of religious observance. *Personality and Individual Differences*, 23, 527–530.
- Edwards, G., Hensman, C., Hawker, A., and Williamson, V. (1966). Who goes to alcoholics anonymous?. *Lancet*, 2, 382–384.
- Eiser, J.R., and van der Pligt, J. (1988). *Attitudes and decisions*. London: Routledge.
- Elifson, K.W., Petersen, D.M., and Hadaway, C.K. (1983). Religiosity and delinquency. *Criminology*, 21, 505–527.
- Engs, R.C., Hanson, D.J., Gliksman, L., and Smythe, C. (1990). Influence of religion and culture on drinking behaviours: A test of hypotheses between Canada and the USA. *British Journal of Addiction*, 85, 1475–1482.
- Eysenck, H.J. (1954). *The Psychology of Politics*. London: Routledge and Kegan Paul.
- Eysenck, H.J. (1961). Personality and social attitudes. *Journal of Social Psychology*, 53, 243–248.
- Eysenck, H.J. (1975). The structure of social attitudes. *British Journal of Social and Clinical Psychology*, 14, 323–331.
- Eysenck, H.J. (1976). Structure of social attitudes. *Psychological Reports*, 39, 463–466.
- Eysenck, H.J., and Eysenck, M.W. (1985). *Personality and Individual Differences: A natural science approach*. New York: Plenum Press.
- Eysenck, S. B. G., and Eysenck, H.J. (1963). On the dual nature of extraversion. *British Journal of Social and Clinical Psychology*, 2, 46–55.
- Eysenck, S. B. G., Eysenck, H.J., and Barrett, P. (1985). A revised version of the psychoticism scale. *Personality and Individual Differences*, 6, 21–29.
- Faulkner, K.K., Alcorn, J.D., and Garvin, R.B. (1989). Prediction of alcohol consumption among fraternity pledges. *Journal of Alcohol and Drug Education*, 34(2):12–20.
- Fearn, M., Lewis, C.A., and Francis, L.J. (2003). Religion and personality among religious studies students: A replication. *Psychological Reports*, 93, 819–822.
- Forrest, S., Lewis, C.A., and Shevlin, M. (2000). Examining the factor structure and differential functioning of the Eysenck Personality Questionnaire Revised-Abbreviated. *Personality and Individual Differences*, 29, 579–588.
- Francis, L.J. (1978). Attitude and longitude: A study in measurement. *Character Potential*, 8, 119–130.
- Francis, L.J. (1989). Measuring attitude towards Christianity during childhood and adolescence. *Personality and Individual Differences*, 10, 695–698.
- Francis, L.J. (1991). Personality and attitude towards religion among adult churchgoers in England. *Psychological Reports*, 69, 791–794.
- Francis, L.J. (1992a). Is psychoticism really a dimension of personality fundamental to religiosity? *Personality and Individual Differences*, 13, 645–652.
- Francis, L.J. (1992b). Reliability and validity of the Francis scale of attitude towards Christianity (adult). *Panorama*, 4(1):17–19.
- Francis, L.J. (1992c). Attitudes towards alcohol, church attendance and denominational identity. *Drug and Alcohol Dependence*, 31, 45–50.
- Francis, L.J. (1993). Personality and religion among college students in the UK. *Personality and Individual Differences*, 14, 619–622.
- Francis, L.J. (1994). Denominational identity, church attendance and drinking behaviour among adults in England. *Journal of Alcohol and Drug Education*, 39(3):27–33.
- Francis, L. J. (1997). The impact of personality and religion on attitude towards substance use among 13–15 year olds. *Drug and Alcohol Dependence*, 44, 95–103.
- Francis, L.J. (1999). Personality and attitude toward Christianity among undergraduates. *Journal of Research on Christian Education*, 8, 179–195.
- Francis, L.J., and Bennett, G.A. (1992). Personality and religion among female drug misusers. *Drug and Alcohol Dependence*, 30, 27–31.
- Francis, L.J., Brown, L.B., and Philipchalk, R. (1992). The development of an abbreviated form of the Revised Eysenck Personality Questionnaire (EPQR-A): Its use among students in England, Canada, The USA, and Australia. *Personality and Individual Differences*, 13(4):443–449.

- Francis, L.J., and Fearn, M. (1999). Religion and personality: A study among A-level students. *Transpersonal Psychology Review*, 3(2):26–30.
- Francis, L.J., Gilpin, G., and Robbins, M. (1999). The reliability of the Francis Scale of Attitude toward Alcohol among student members of the Christian Union in Northern Ireland and Scotland. *Irish Journal of Psychology*, 20, 89–92.
- Francis, L.J., and Katz, Y. (1992). The relationship between personality and religiosity in an Israeli sample. *Journal for the Scientific Study of Religion*, 31, 153–162.
- Francis, L.J., and Kwiran, M. (1999). Personality and religion among secondary pupils in Germany. *Panorama*, 11, 34–44.
- Francis, L.J., Lankshear, D.W., and Pearson, P.R. (1989). The relationship between religiosity and the short form JEPQ (JEPQ-S) indices of E, N, L and P among eleven year olds. *Personality and Individual Differences*, 10, 763–769.
- Francis, L.J., Lewis, C.A., and Ng, P. (2003). Psychological health and attitude toward Christianity among secondary school pupils in Hong Kong. *Journal of Psychology in Chinese Societies*, 4, 231–245.
- Francis, L.J., Lewis, J.M., Brown, L.B., Philipchalk, R., and Lester, D. (1995). Personality and religion among undergraduate students in the United Kingdom, United States, Australia and Canada. *Journal of Psychology and Christianity*, 14, 250–262.
- Francis, L.J., and Montgomery, A. (1992). Personality and attitudes towards religion among 11–16 year old girls in a single sex Catholic school. *British Journal of Religious Education*, 14, 114–119.
- Francis, L.J., and Pearson, P.R. (1985a). Psychoticism and religiosity among 15 year olds. *Personality and Individual Differences*, 6, 397–398.
- Francis, L.J., and Pearson, P.R. (1985b). Extraversion and religiosity. *Journal of Social Psychology*, 125, 269–270.
- Francis, L.J., and Pearson, P.R. (1988). Religiosity and the short-scale EPQ-R indices of E, N and L, compared with the JEPI, JEPQ and EPQ. *Personality and Individual Differences*, 9, 653–657.
- Francis, L.J., and Pearson, P.R. (1991). Religiosity, gender and the two faces of neuroticism. *Irish Journal of Psychology*, 12, 60–68.
- Francis, L.J., Pearson, P.R., Carter, M., and Kay, W.K. (1981a). The relationship between neuroticism and religiosity among English 15- and 16-year olds. *Journal of Social Psychology*, 114, 99–102.
- Francis, L.J., Pearson, P.R., Carter, M., and Kay, W.K. (1981b). Are introverts more religious?. *British Journal of Social Psychology*, 20, 101–104.
- Francis, L.J., Pearson, P.R., and Kay, W.K. (1983a). Neuroticism and religiosity among English school children. *Journal of Social Psychology*, 121, 149–150.
- Francis, L.J., Pearson, P.R., and Kay, W.K. (1983b). Are introverts still more religious?. *Personality and Individual Differences*, 4, 211–212.
- Francis, L.J., Pearson, P.R., and Kay, W.K. (1983c). Are religious children bigger liars?. *Psychological Reports*, 52, 551–554.
- Francis, L.J., Pearson, P.R., and Kay, W.K. (1988). Religiosity and lie scores: A question of interpretation. *Social Behaviour and Personality*, 16, 91–95.
- Francis, L.J., and Stubbs, M.T. (1987). Measuring attitudes towards Christianity: From childhood to adulthood. *Personality and Individual Differences*, 8, 741–743.
- Freud, S. (1950). *Totem and Taboo*. London: Routledge and Kegan Paul.
- Furnham, A. (1986). Response bias, social desirability and dissimulation. *Personality and Individual Differences*, 7, 385–400.
- Globetti, G. (1969). The use of alcohol among high school students in an abstinence setting. *Pacific Sociological Review*, 12, 105–108.
- Globetti, G. (1972). Problem and non-problem drinking among high school students in abstinence communities. *International Journal of Addiction*, 7, 511–523.
- Globetti, G., and Windham, G.O. (1967). The social adjustment of high school students and the use of beverage alcohol. *Sociology and Social Research*, 51, 148–157.
- Gottlieb, N.H., and Green, L.W. (1984). Life events, social network, life-style, and health: An analysis of the 1979 national survey of personal health practices and consequences. *Health Education Quarterly*, 11, 91–105.
- Grau, E., and Ortet, G. (1999). Personality traits and alcohol consumption in a sample of non-alcoholic women. *Personality and Individual Differences*, 27, 1057–1066.

- Hadaway, C.K., Elifson, K.W., and Petersen, D.M. (1984). Religious involvement and drug use among urban adolescents. *Journal for the Scientific Study of Religion*, 23, 109–128.
- Hammermeister, J., Flint, M., Havens, J., and Peterson, M. (2001). Psychosocial and health related characteristics of religious well-being. *Psychological Reports*, 89, 589–594.
- Hanson, D.J. (1974). Drinking attitudes and behaviour among college students. *Journal of Alcohol and Drug Education*, 19, 6–14.
- Hanson, D.J., and Engs, R.C. (1987). Religion and collegiate drinking problems over time. *Psychology*, 24, 10–12.
- Hardert, R.A., and Dowd, T.J. (1994). Alcohol and marijuana use among high school and college students in Phoenix, Arizona: A test of Kandel's socialization theory. *International Journal of Addictions*, 29, 887–912.
- Harford, T.C., and Grant, B.F. (1987). Psychosocial factors in adolescent drinking contexts. *Journal of Studies on Alcohol*, 48, 551–557.
- Hawks, R.D., and Bahr, S.H. (1992). Religion and drug use. *Journal of Drug Education*, 22, 1–8.
- Hays, R.D., Stacy, A.W., Widaman, K.F., DiMatteo, M.R., and Downey, R. (1986). Multistage path models of adolescent alcohol and drug use: A re-analysis. *Journal of Drug Issues*, 16, 357–369.
- Heaven, P. C. L. (1990). Religious values and personality dimensions. *Personality and Individual Differences*, 11, 953–956.
- Heim, D., Hunter, S.C., Ross, A.J., Bakshi, N., Davies, J.B., Flatley, K.J., and Meer, N. (2004). Alcohol consumption, perceptions of community responses and attitudes toward service provision: Results from a survey of Indian, Chinese and Pakistani young people in Greater Glasgow, Scotland, UK. *Alcohol and Alcoholism*, 39, 220–226.
- Higgins, P.C., and Albrecht, G.L. (1977). Hellfire and delinquency revisited. *Social Forces*, 55, 952–958.
- Hilton, M.E., and Clark, W.B. (1987). Changes in American drinking patterns and problems, 1967–1984. *Journal of Studies on Alcohol*, 48, 515–522.
- Hundleby, J.D. (1987). Adolescent drug use in a behavioural matrix: A confirmation and comparison of the sexes. *Addictive Behaviours*, 12, 103–112.
- Jackson, C.P., and Matthews, G. (1988). The prediction of habitual alcohol use from alcohol related expectancies and personality. *Alcohol and Alcoholism*, 23, 305–314.
- Jensen, G.F., and Erickson, M.L. (1979). The religious factor and delinquency: another look at the hellfire hypothesis. In R. Wuthnow (ed.), *The religious dimension: New directions in quantitative research* (pp. 157–178). New York: Academic Press.
- Jessor, R., and Jessor, S.L. (1975). Adolescent development and the onset of drinking. *Journal of Studies on Alcohol*, 36, 27–51.
- Jessor, R., and Jessor, S.L. (1977). *Problem behaviour and psychological developments: a longitudinal study of youth*. New York: Academic Press.
- Johnson, R.C., Danko, G.P., Darvill, T.J., Bochner, S., Bowers, J.K., Huang, Y-H., Park, J.Y., Pecjak, V., Rahim, A. R. A., and Pennington, D. (1989). Cross cultural assessment of altruism and its correlates. *Personality and Individual Differences*, 10, 855–868.
- Johnston L.D., O'Mally P.M., and Bachman J.G. (1992). Smoking, drinking, and illicit drug use among American secondary school students, college students, and young adults, 1975–1991 Volume I: Secondary School Students. NIDA DHHS (NIH Publication No. 93–3480), Washington: Government Printing Office.
- Jolly, S., and Orford, J. (1983). Religious observance, attitudes towards drinking, and knowledge about drinking, amongst university students. *Alcohol and Alcoholism*, 18, 271–278.
- Jorm, A.F. (1987). Sex differences in neuroticism: A quantitative synthesis of published research. *Australian and New Zealand Journal of Psychiatry*, 21, 501–506.
- Jung, C.G. (1938). *Psychology and religion*. New Haven, CT: Yale University Press.
- Kay, W.K. (1981). Psychoticism and attitude to religion. *Personality and Individual Differences*, 2, 249–252.
- Kay, W.K., and Francis, L.J. (1996). *Drift from the churches: Attitude toward Christianity during childhood and adolescence*. Cardiff: University of Wales Press.
- Keehan, J.D. (1970). Neuroticism and extraversion: Chronic alcoholics' reports on effects of drinking. *Psychological Reports*, 27, 767–770.
- Khavari, K.A., and Harmon, T.M. (1982). The relationship between the degree of professed religious belief and use of drugs. *International Journal of Addiction*, 17, 847–857.

- Koenig, H.G., George, L.K., Meador, K.G., Blazer, D.G., and Ford, S.M. (1994). The relationship between religion and alcoholism in a sample of community-dwelling adults. *Hospital and Community Psychiatry*, 45, 586–596.
- Lewis, C.A. (1999). Is the relationship between religiosity and personality 'contaminated' by social desirability as assessed by the lie scale? A methodological reply to Michael W. Eysenck (1998). *Mental Health, Religion and Culture*, 2, 105–114.
- Lewis, C.A. (2000). The religiosity-psychoticism relationship and the two factors of social desirability: A response to Michael W. Eysenck (1999). *Mental Health, Religion and Culture*, 3, 39–45.
- Lewis, C.A. (2001). Cultural stereotype of the effects of religion on mental health. *British Journal of Medical Psychology*, 74, 359–367.
- Lewis, C.A., and Francis, L.J. (2000). Personality and religion among female university students in France. *International Journal of Psychology*, 35, 229.
- Lewis, C.A., and Joseph, S. (1994). Religiosity: Psychoticism and obsessiveness in Northern Irish university students. *Personality and Individual Differences*, 17, 685–687.
- Lewis, C.A., and Maltby, J. (1995). Religiosity and personality among US adults. *Personality and Individual Differences*, 18, 293–295.
- Loewenthal, K.M., MacLeod, A.K., Cook, S., and Goldblatt, V. (2003). Beliefs about alcohol among UK Jews and Protestants: Do they fit the alcohol depression hypothesis. *Social Psychiatry and Psychological Epidemiology*, 38(3):122–127.
- Long, K.A., and Boik, R.J. (1993). Predicting alcohol use in rural children: A longitudinal study. *Nursing Research*, 42(2):79–86.
- Loo, R. (1980). Characteristics of the Eysenck Personality Questionnaire lie scale and of extreme lie scorers. *Psychology: A Quarterly Journal of Human Behaviour*, 17, 5–10.
- Lorch, B.R., and Hughes, R.H. (1985). Religion and youth substance use. *Journal of Religion and Health*, 24, 197–208.
- Lubben, J.E., Chi, I., and Kitano, H. H. L. (1988). Exploring Filipino American drinking behaviour. *Journal of Studies on Alcohol*, 49, 26–29.
- Maltby, J. (1997). Personality correlates of religiosity among adults in the Republic of Ireland. *Psychological Reports*, 81, 827–831.
- Maltby, J., and Lewis, C.A. (1997). The reliability and validity of a short scale of attitude toward Christianity among USA, English, Republic of Ireland and Northern Ireland adults. *Personality and Individual Differences*, 22, 649–654.
- Margulies, R.Z., Kessler, R.C., and Kandel, D.B. (1977). A longitudinal study of onset of drinking among high-school students. *Journal of Studies on Alcohol*, 38, 897–912.
- Martino, E.R., and Truss, C.V. (1973). Drug use and attitude towards social and legal aspects of marijuana in a large metropolitan university. *Journal of Counselling Psychology*, 20, 120–126.
- Mason, W.A., and Windle, M. (2001). Family, religious, school and peer influences on adolescent alcohol use: a longitudinal study. *Journal of Studies on Alcohol*, 62, 44–53.
- Mason, W.A., and Windle, M. (2002). A longitudinal study of the effects of religiosity on adolescent alcohol use and alcohol-related problems. *Journal of Adolescent Research*, 17, 346–363.
- Massey, A. (1980). The Eysenck Personality Inventory lie scale lack of insight or...? *Irish Journal of Psychology*, 4, 172–174.
- Middleton, R., and Putney, S. (1962). Religion, normative standards and behaviour. *Sociometry*, 25, 141–152.
- Mookherjee, H.N. (1986). Comparison of some personality characteristics of male problem drinkers in rural Tennessee. *Journal of Alcohol and Drug Education*, 31, 23–28.
- Mullen, K., Blaxter, M., and Dyer, S. (1986). Religion and attitudes towards alcohol use in the Western Isles. *Drug and Alcohol Dependence*, 18, 51–72.
- Mullen, K., Williams, R., and Hunt, K. (1996). Irish descent, religion and alcohol and tobacco use. *Addiction*, 91, 243–254.
- Nias, D. K. B. (1973). Attitudes to the Common Market: A case study in conservatism. In G.D. Wilson (ed.), *The Psychology of Conservatism* (pp. 239–255). London: Academic Press.
- Nonnemaker, J.M., McNeely, C.A., and Blum, R.W. (2003). Public and private domains of religiosity and adolescent health risk behaviours: Evidence from the National Longitudinal Study of Adolescent Health. *Social Science and Medicine*, 57, 2049–2054.
- Nusbaumer, M.R. (1981). Religious affiliation and abstinence: A fifteen-year change. *Journal of Studies on Alcohol*, 42, 127–131.

- O'Connor, J.C. (1978). *The young drinkers: A cross-national study of social and cultural influences*. London: Tavistock Publications.
- O'Donovan, D. (1969). An historical review of the lie scale: With particular reference to the Maudsley Personality Inventory. *Papers in Psychology*, 3, 13–19.
- Ogden, M.E., Dundas, M., and Bhat, A.V. (1989). Personality differences among alcohol misusers in community treatment. *Personality and Individual Differences*, 10, 265–267.
- Parfrey, P.S. (1976). The effect of religious factors on intoxicant use. *Scandinavian Journal of Social Medicine*, 4, 135–140.
- Patock-Peckham, J.A., Hutchinson, G.T., Cheong, J., and Nagoshi, C.T. (1998). Effect of religion and religiosity on alcohol use in a college student sample. *Drug and Alcohol Dependence*, 49, 81–88.
- Pearson, P.R., and Francis, L.J. (1989). The dual nature of the Eysenckian lie scales: Are religious adolescents more truthful? *Personality and Individual Differences*, 10, 1041–1048.
- Pearson, P.R., Francis, L.J., and Lightbown, T.J. (1986). Impulsivity and religiosity. *Personality and Individual Differences*, 7, 89–94.
- Pearson, P.R., and Sheffield, B.F. (1976). Is personality related to social attitudes? An attempt at replication. *Social Behaviour and Personality*, 4, 109–111.
- Peltzer, K., Malaka, D.W., and Phaswana, N. (2002). Sociodemographic factors religiosity, academic performance, and substance use among first-year university students in South Africa. *Psychological Reports*, 91, 105–113.
- Perkins, H.W. (1985). Religious traditions, parents, and peers as determinants of alcohol and drug use among college students. *Review of Religious Research*, 27, 15–31.
- Perkins, H.W. (1987). Parental religion and alcohol use problems as inter-generational predictors of problem drinking among college youths. *Journal for the Scientific Study of Religion*, 26, 340–357.
- Perkins, H.W. (1991). Religious commitment, yuppie values, and wellbeing in post-collegiate life. *Review of Religious Research*, 32, 244–251.
- Potvin, R.H., and Lee, C-F. (1980). Multi-stage path models of adolescent alcohol and drug use. *Journal of Studies on Alcohol*, 41, 531–542.
- Preston, J.D. (1969). Religiosity and adolescent drinking behaviour. *Sociological Quarterly*, 10, 372–383.
- Rankin, H., Stockwell, T., and Hodgson, R. (1982). Personality and alcohol dependence. *Personality and Individual Differences*, 3, 145–151.
- Robbins, M., Francis, L.J., and Gibbs, D. (1995). Personality and religion: A study among 8–11 year olds. *Journal of Beliefs and Values*, 16(1):1–6.
- Robinson, T.N. (1990). Eysenck personality measures and religious orientation. *Personality and Individual Differences*, 11, 915–921.
- Rocklin, T., and Revelle, W. (1981). The measurement of extraversion: A comparison of the Eysenck Personality Inventory and the Eysenck Personality Questionnaire. *British Journal of Social Psychology*, 20, 279–284.
- Roman, R.E., and Lester, D. (1999). Religiosity and mental health. *Psychological Reports*, 85, 1088.
- Rosenberg, C.M. (1969). Young alcoholics. *British Journal of Psychiatry*, 115, 181–188.
- Sadava, S.W. (1985). Problem behaviour theory and consumption and consequences of alcohol use. *Journal of Studies on Alcohol*, 46, 392–397.
- Schlegel, R.P., and Sanborn, M.D. (1979). Religious affiliation and adolescent drinking. *Journal of Studies on Alcohol*, 40, 693–703.
- Shaw, D.M., MacSweeney, D.A., Johnson, A.L., and Merry, J. (1975). Personality characteristics of alcoholic and depressed patients. *British Journal of Psychiatry*, 126, 56–59.
- Shore, E.R., Rivers, P.C., and Berman, J.J. (1983). Resistance by college students to peer pressure to drink. *Journal of Studies on Alcohol*, 44, 352–361.
- Shuter-Dyson, R. (2000). Profiling music students: Personality and religiosity. *Psychology of Music*, 28, 190–196.
- Siegmán, A.W. (1963). A cross-cultural investigation of the relationship between introversion, social attitudes and anti-social behaviour. *British Journal of Social and Clinical Psychology*, 2, 196–208.
- Skolnick, J.H. (1958). Religious affiliation and drinking behaviour. *Journal of Studies on Alcohol*, 19, 452–470.
- SPSS Inc (1988). *SPSSX User's Guide*. New York: McGraw-Hill.

- Straus, R., and Bacon, S.D. (1953). *Drinking in college*. New Heaven: Yale University Press.
- Sutherland, I., and Shepherd, J.P. (2001). Social dimensions of adolescent substance use. *Addiction*, 96, 445–458.
- Turner, C.J., and Willis, R.J. (1979). Relationship between self-reported religiosity and drug use by college students. *Journal of Drug Education*, 9, 67–78.
- Vener, A.M., Zaenglein, M.M., and Stewart, C. (1977). Traditional religious orthodoxy, respect for authority and non-conformity in adolescence. *Adolescence*, 12, 43–56.
- Vine, I. (1978). Facts and values in the psychology of religion. *Bulletin British Psychological Society*, 31, 414–417.
- Watson, P.J., Morris, R.J., Foster, J.E., and Hood, R.W. (1986). Religiosity and social desirability. *Journal for the Scientific Study of Religion*, 25, 215–232.
- Wechsler, H., Demone, H.W., Thum, D., and Kasey, E.H. (1970). Religious-ethnic differences in alcohol consumption. *Journal of Health and Social Behaviour*, 11, 21–29.
- Wechsler, H., and McFadden, M. (1979). Drinking among college students in New England. *Journal of Studies on Alcohol*, 40, 969–996.
- Wechsler, H., and Thum, D. (1973). Teenage drinking, drug use, and social correlates. *Journal of Studies on Alcohol*, 34, 1220–1227.
- Welch, M.R., Tittle, C.R., and Petee, T. (1991). Religion and deviance among adult Catholics: A test of the 'moral communities' hypothesis. *Journal for the Scientific Study of Religion*, 30, 159–172.
- Wilcox, C., and Francis, L.J. (1997). Personality and religion among A level religious studies students. *International Journal of Children's Spirituality*, 1(2):48–56.
- Wiggins, J.A., and Wiggins, B.B. (1987). Drinking at a Southern University: Its description and correlates. *Journal of Studies on Alcohol*, 48, 319–324.
- Wilson, G.D., and Brazendale, A.H. (1973). Social attitude correlates of Eysenck's personality dimensions. *Social Behaviour and Personality*, 1, 115–118.
- Youtika, A., Joseph, S., and Diduca, D. (1999). Personality and religiosity in a Greek Christian Orthodox sample. *Mental Health, Religion and Culture*, 2, 71–74.
- Zucker, R.A., and Harford, T.C. (1983). National study of the demography of adolescent drinking practices in 1980. *Journal of Studies on Alcohol*, 44, 974–985.